No. 8900127

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Rogers NK Seed Co.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT TY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BEAN

'Cinnabar'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D.C. *this* 31st *day of* March *in the year of our Lord one thousand nine hundred and* ninety-three.

Attest:

Kenneth Evans

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Mike Espy

Secretary of Agriculture

APPROVAL EXPIRES 4-30-85

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. NAME OF APPLICANT(S)
NK AAA 2 July 1992
ROGERS ~~BROTHERS~~ SEED COMPANY

2. TEMPORARY DESIGNATION
D81125

3. VARIETY NAME
Cinnabar

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
P.O. Box 4727
Boise, Idaho 83711

5. PHONE *(Include area code)*
(208) 322-7272

FOR OFFICIAL USE ONLY

PVPO NUMBER
8900127

6. GENUS AND SPECIES NAME
Phaseolus vulgaria

7. FAMILY NAME *(Botanical)*
Leguminoseae

FILING
DATE Mar. 27, 1989
TIME 9:30 [X] A.M. [ ] P.M.

8. KIND NAME
Dry Edible Bean

9. DATE OF DETERMINATION
Summer 1986

FEES RECEIVED
AMOUNT FOR FILING
$ 1800.00
DATE Feb. 14 1989
AMOUNT FOR CERTIFICATE
$ 200.00
DATE Feb 23 1993

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Deleware

12. DATE OF INCORPORATION
Feb. 25, 1975

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Dr. ~~Ronald Shellenberger~~ DAVID WILLMOT AAA 2 July 1992
~~Rogers Brothers Seed Company~~ Rogers NK Seed Co.
~~P.O. Box 4727~~ 6338 Highway 20-26 #10 1/13/93
~~Boise, Idaho 83711~~ Nampa, ID 83687
PHONE *(Include area code)*: (208) ~~322-7272~~ 466-0319

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. [X] Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
b. [X] Exhibit B, Novelty Statement.
c. [X] Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
d. [X] Exhibit D, Additional Description of Variety.
e. [ ] Exhibit E, Statement of the Basis of Applicant's Ownership.

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)*
[ ] Yes *(If "Yes," answer items 16 and 17 below)* [X] No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
[ ] Yes [X] No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
[ ] Foundation [ ] Registered [ ] Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
[ ] Yes *(If "Yes," give date)*
[XX] No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
[ ] Yes *(If "Yes," give names of countries and dates)*
Sale of product for field trials only.
[XX] No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT
Ronald Shellenberger Field Marketing Dir.
DATE 1/6/89

SIGNATURE OF APPLICANT
DATE

FORM WA-470 (7-84) (Replaces previous edition)

8900127

DRY EDIBLE BEAN

~~D81125~~ 'Cinnabar'

EXHIBIT A

ORGIN AND BREEDING HISTORY

The Pinto bean 'Cinnabar' ~~D81125~~ was derived from the following cross pollination in the greenhouse during the winter of 1973-74.

UI 37 X Ouray

Details of selection and multiplication.

	Year	Generation	Field Number	Bulk Harvest	# of Single Plant Selection
Winter	1974	F1	GH	2 oz.	
Summer	1975	F2	D75-904	3# 3 oz.	
Summer	1977	F3	D77-2396	2#	1
Summer	1978	F4	D78-2354	2#	3
Winter	1979	F5	GH 91	2 oz.	
Summer	1979	F6	D79-1362	2#	
Summer	1980	F7	D80-1014	1# 12 oz.	1
Summer	1981	F8	D81-125	5# 14 oz.	2
Summer	1982	F9	D82-3406	5# 2 oz.	2
Summer	1983	F10	D83-3918	5# 2 oz.	2
Summer	1984	F11	D84-3018	33#	
Summer	1986	F12	D86-3139	1,050#	

The variety 'Cinnabar' ~~D81125~~ was stablized in the F7 generation. 'D81125' has been observed to be stable and uniform for 6 generations in the field since 1980. We have made no observations of variants in the populations.

2

Stock D86-3139 has been increased to commercial size quantities. This variety will be maintained through the procedure of pure line selection for seed stock.

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DRY EDIBLE BEAN

~~'D81125'~~ 'Cinnabar' 9/17/93

EXHIBIT B

NOVELTY STATEMENT

Our variety ~~'D81125'~~ 'Cinnabar' is most nearly like the variety 'UI 114', however it differs in the following areas.

1. ~~'D81125'~~ 'Cinnabar' has a Type II plant habit, whereas 'UI 114' has a Type III plant habit.
2. ~~'D81125'~~ 'Cinnabar' has a slightly longer pod than 'UI 114', and a shorter spur.
3. ~~'D81125'~~ 'Cinnabar' is more upright than 'UI 114', and is shorter in total plant height.
4. ~~'D81125'~~ 'Cinnabar' has more primary branches near the base than 'UI 114'.

4

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PLANT HEIGHT COMPARISONS *

AKO 9/17/93
'Cinnabar'
~~D81125~~

	UI 114
63 cm	75 cm
63	70
64	90
60	50
68	64
58	64
57	75
62	49
52	59
62	73
53	64
58	64
56	68
67	51
69	69
57	84
50	82
53	86
73	82
58	69
60.15	69.4

* TOTAL PLANT HEIGHT, INCLUDING VINE, WAS MEASURED.

~~KJS~~ 3/17/93
'Cinnabar'

8900127

Data file **PLANTHT**
Title: PLANT HEIGHT COMPARISONS ~~D81125~~/UI 114

Function: ANOVA-1
Data case no. 1 to 40
Without selection

One way ANOVA grouped over variable 1
VARIETY
with values from 1 to 2

Variable 3
PLANT HEIGHT

A N A L Y S I S O F V A R I A N C E T A B L E

	Degrees of Freedom	Sum of Squares	Error Mean Square	F-value	Prob.
Between	1	855.6250	855.63	9.63	.003
Within	38	3377.3500	88.88		
Total	39	4232.9750			

Coefficient of Variation= 14.55%

Var. 1	V A R I A B L E No. 3 Number	Sum	Average	SD	SE
1	20.00	1203.000	60.15	6.12	2.11
2	20.00	1388.000	69.40	11.84	2.11
Total	40.00	2591.000	64.78	10.42	1.65
Within				9.43	

Bartlett's Test

Chi-square = 7.528512
Number of Degrees of Freedom = 1
Approximate Significance = .006

8900127

POD SPUR LENGTH

~~3/17/93~~

'cinnabar' 1985 ~~D81125~~	UI 114	'Cinnabar' 1986 ~~D81125~~	UI 114
6 mm	10 mm	10 mm	9 mm
8	10	10	12
6	12	11	9
7	10	9	10
7	10	10	12
8	7	7	9
8	10	9	14
6	10	7	15
4	10	9	9
5	11	8	10
8	10	8	8
6	18	10	11
9	12	10	11
6	9	6	12
9	9	14	10
6	10	9	15
8	10	11	14
6	12	10	10
6	10	8	11
5	11	11	7
6.7	10.55	9.35	10.9

7

8900127

~~KB~~ 3/17/93
'Cinnabar'

Data file 85SPUR
Title: 1985 SPUR LENGTH COMPARISON ~~D81125~~/UI 114

Function: ANOVA-1
Data case no. 1 to 40
Without selection

One way ANOVA grouped over variable 1
VARIETY
with values from 1 to 2

Variable 3
SPUR LENGTH

A N A L Y S I S O F V A R I A N C E T A B L E

	Degrees of Freedom	Sum of Squares	Error Mean Square	F-value	Prob.
Between	1	148.2250	148.23	47.27	.000
Within	38	119.1500	3.14		
Total	39	267.3750			

Coefficient of Variation= 20.53%

V A R I A B L E No. 3

Var. 1	Number	Sum	Average	SD	SE
1	20.00	134.000	6.70	1.38	0.40
2	20.00	211.000	10.55	2.09	0.40
Total	40.00	345.000	8.63	2.62	0.41
Within				1.77	

Bartlett's Test

Chi-square = 3.09488
Number of Degrees of Freedom = 1
Approximate Significance = .0785

8

8900127

3/7/93
Einnabar'

Data file 86SPUR
Title: 1986 SPUR LENGTH COMPARISON ~~D81125~~/UI 114

Function: ANOVA-1
Data case no. 1 to 40
Without selection

One way ANOVA grouped over variable 1
VARIETY
with values from 1 to 2

Variable 3
SPUR LENGTH

A N A L Y S I S O F V A R I A N C E T A B L E

	Degrees of Freedom	Sum of Squares	Error Mean Square	F-value	Prob.
Between	1	24.0250	24.02	5.77	.021
Within	38	158.3500	4.17		
Total	39	182.3750			

Coefficient of Variation= 20.16%

V A R I A B L E No. 3

Var. 1	Number	Sum	Average	SD	SE
1	20.00	187.000	9.35	1.79	0.46
2	20.00	218.000	10.90	2.27	0.46
Total	40.00	405.000	10.13	2.16	0.34
Within				2.04	

Bartlett's Test

Chi-square = 1.05388
Number of Degrees of Freedom = 1
Approximate Significance = .3046

9

8900127

NUMBER OF PRIMARY BRANCHES NEAR BASE

KW 3/17/93

'Cinnabar' 1985 ~~D81125~~	UI 114
4	4
4	3
5	2
4	2
3	4
3	2
2	2
3	2
3	3
4	2
3.5	2.6

'Cinnabar' 1986 ~~D81125~~	UI 114
3	2
4	2
2	2
2	2
3	2
2	2
3	2
3	2
2	2
2	2
2	2
2	2
3	2
3	2
2	2
3	2
2	2
3	2
3	2
2	2
2.55	2

3/17/93 8900127

Data file 85BRANCH 'cinnabar'
Title: 1985 PRIMARY BRANCH COMPARISONS ~~D81125~~/UI 114

Function: ANOVA-1
Data case no. 1 to 20
Without selection

One way ANOVA grouped over variable 1
VARIETY
with values from 1 to 2

Variable 3
NUMBER OF BRANCHES

A N A L Y S I S O F V A R I A N C E T A B L E

	Degrees of Freedom	Sum of Squares	Error Mean Square	F-value	Prob.
Between	1	4.0500	4.05	5.65	.028
Within	18	12.9000	0.72		
Total	19	16.9500			

Coefficient of Variation= 27.76%

Var. 1	V A R I A B L E Number	Sum	Average	SD	SE
1	10.00	35.000	3.50	0.85	0.27
2	10.00	26.000	2.60	0.84	0.27
Total	20.00	61.000	3.05	0.94	0.21
Within				0.85	

Bartlett's Test

Chi-square = 5.123813E-04
Number of Degrees of Freedom = 1
Approximate Significance = .9819

11

POD LENGTH

KO 3/17/93

'Cinnabar' 1985		'Cinnabar' 1986	
~~D81125~~	UI 114	~~D81125~~	UI 114
130 mm	110 mm	125 mm	111 mm
120	125	115	120
110	115	125	127
110	125	132	121
110	120	106	125
115	125	122	113
130	125	130	109
135	120	129	132
120	110	129	120
140	110	120	115
120	120	127	126
120	110	123	117
130	110	111	115
130	125	119	132
130	130	129	121
140	130	143	131
125	110	118	120
115	115	105	129
125	125	126	102
115	120	100	109
123.5	119	121.7	119.75

KL 3/17/93

8900127

Data file 85PODLG 'cinnabar'
Title: 1985 POD LENGTH COMPARISON ~~D81125~~/UI 114

Function: ANOVA-1
Data case no. 1 to 40
Without selection

One way ANOVA grouped over variable 1
VARIETY
with values from 1 to 2

Variable 3
POD LENGTH

A N A L Y S I S O F V A R I A N C E T A B L E

	Degrees of Freedom	Sum of Squares	Error Mean Square	F-value	Prob.
Between	1	202.5000	202.50	2.87	.098
Within	38	2685.0000	70.66		
Total	39	2887.5000			

Coefficient of Variation= 6.93%

Var. 1	V A R I A B L E No. 3 Number	Sum	Average	SD	SE
1	20.00	2470.000	123.50	9.47	1.88
2	20.00	2380.000	119.00	7.18	1.88
Total	40.00	4850.000	121.25	8.60	1.36
Within				8.41	

Bartlett's Test

Chi-square = 1.401503
Number of Degrees of Freedom = 1
Approximate Significance = .2364

13

Exhibit C

U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK AND SEED DIVISION

OBJECTIVE DESCRIPTION OF VARIETY
Dry Edible Bean (Phaseolus vulgaris L.)

NAME OF APPLICANT(S)	EXPERIMENTAL NAME	VARIETY NAME
Rogers Brothers Seed Company	81125	Cinnabar

ADDRESS (Street and No. or R.F.D. No., City, State, ZIP)
1755 Westgate Drive, Suite 100
Boise, Idaho 83704

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PVPO NO. - 8900127

Provide data for all characters unless indicated as "optional." Place numbers in the boxes for the characters or numerical values which best describe this variety. Measured data should be the mean of an appropriate number of well spaced (15-20 cm) plants. The Royal Horticulture Society or any recognized color standard may be used to determine plant color. Designate the color system used below.

COLOR SYSTEM USED

LOCATION OF THE TEST(S) TO EVALUATE THIS VARIETY
Twin Falls, Idaho

1. MARKET CLASS

[4]

CLASS	CHECK
1 = Navy (Pea)	Seafarer
2 = Small White	Aurora
3 = Black	Midnight
4 = Pinto	UI-114
5 = Great Northern	UI-59
6 = Small Red	NW-59
7 = Pink	Viva
8 = Cranberry	UI-50
9 = Dark Red Kidney	Montcalm
10 = Light Red Kidney	Redkloud
11 = Yellow Eye	Steuben
12 = Other (specify)	

2. MATURITY

[2] 1 = Early (80-90 days); 2 = Medium (90-100 days); 3 = Late (>100 days)
Physiological Maturity (90% pods dry & Buckskin)

[9][1] Days from planting to harvest maturity 5 year average

[1][4][7][9] Heat units from planting to harvest maturity (optional). Specify base temperature used: 50

[9][1] Days from planting to harvest maturity of check variety (use check appropriate to market class shown in item 1)

3. PLANT HABIT

[4]

TYPE
1 = Ia Bush-determinate, strong and erect stem and branches
2 = Ib Bush-determinate, weak stem and branches
3 = IIa Erect growth habit-indeterminate, guides (runners) short or not developed
4 = IIb Erect growth habit-indeterminate, guides medium to long, with no ability to climb
5 = IIIa Vine-indeterminate, short guides with no ability to climb
6 = IIIb Vine-indeterminate, long guides with ability to climb
7 = IVa Indeterminate climbing, pods distributed throughout the plant
8 = IVb Indeterminate climbing, pods concentrated on the upper part of the plant

[6][0] 60.15 (7 of 20 plants) Average height of mature plant, in cm.

[6][9] Total plant height including vine. Average height of check variety, in cm. (use same check as above)

[3] Pod Position: 1 = Low (lower pods touching soil surface) 2 = High (lower pods not touching soil surface) 3 = Scattered (not concentrated high or low)

[1] Adaptability to machine harvest: 1 = Adapted 2 = Not Adapted

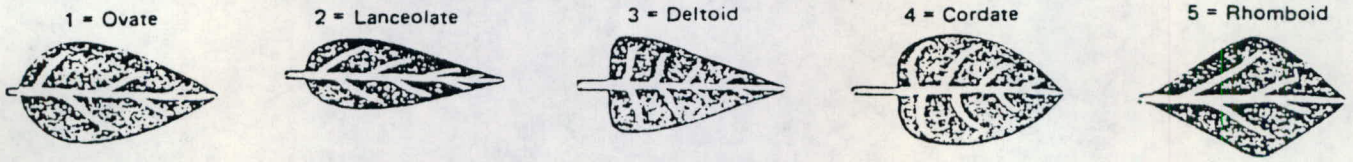
[2] Lodging resistance: 1 = Good 2 = Fair 3 = Poor

4. LEAFLET MORPHOLOGY (Use terminal leaflet of a fully expanded trifoliolate)

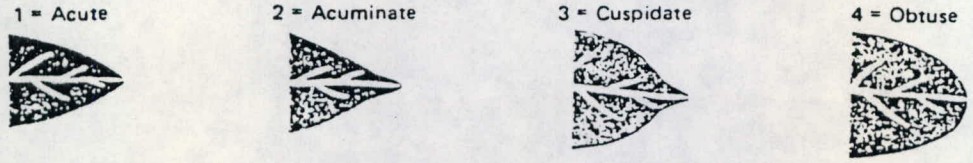
[2] 1 = Smooth; 2 = Wrinkled

[1] 1 = Dull; 2 = Glossy; 3 = Semiglossy; 4 = Variable

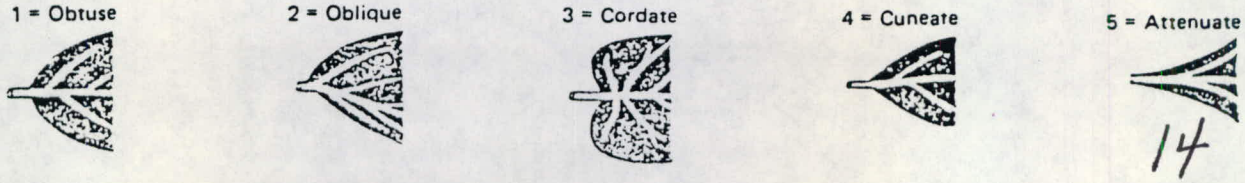
[1] SHAPE:



[2] APEX OF LEAFLET:



[1] BASE OF LEAFLET:



8900127

5. FLOWER COLOR AND DAYS TO BLOOM

[1] COLOR OF STANDARD: 1 = White; 2 = Cream; 3 = Pink; 4 = Blue; 5 = Purple

[1] COLOR OF KEEL: 1 = White; 2 = Cream; 3 = Pink; 4 = Blue; 5 = Purple

[1] COLOR OF WINGS: 1 = White; 2 = Cream; 3 = Pink; 4 = Blue; 5 = Purple

[5][0] Days to 1st ~~50%~~ bloom

50.4 days ($\bar{x}$ of 5 years)

6. POD MORPHOLOGY (Green pod morphology optional)

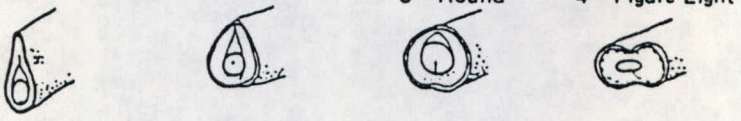
Green [1] Mature [1] COLOR PATTERN: 1 = Solid; 2 = Striped; 3 = Blotched; 4 = Mottled; 5 = Other _____

[3] [4] PRIMARY COLOR: 1 = Purple; 2 = Red; 3 = Green; 4 = Yellow; 5 = Tan; 6 = Brown; 7 = Other _____

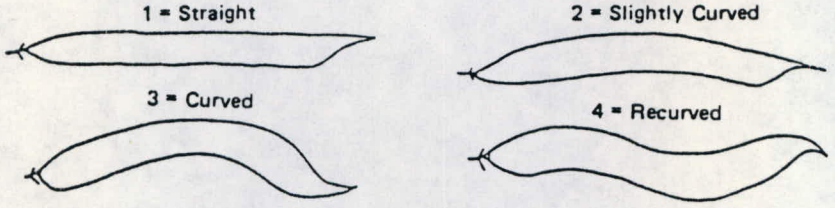
[1] [1] COLOR MODIFIER: 1 = Light; 2 = Light Medium; 3 = Medium; 4 = Medium Dark; 5 = Dark

[ ] [ ] SECONDARY COLOR: 1 = Purple; 2 = Red; 3 = Green; 4 = Yellow; 5 = Tan; 6 = Brown; 7 = Other _____

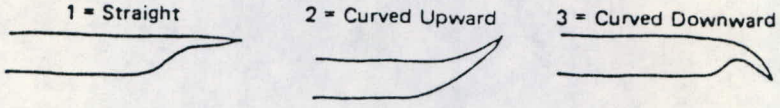
[1] [1] CROSS SECTION SHAPE: 1 = Flat; 2 = Pear; 3 = Round; 4 = Figure Eight



[1] [1] POD CURVATURE: 1 = Straight; 2 = Slightly Curved; 3 = Curved; 4 = Recurved



[3] [3] POD BEAK ORIENTATION: 1 = Straight; 2 = Curved Upward; 3 = Curved Downward; 4 = Variable



Average beak length, in cm. _____

[3] [3] CONSTRICTIONS: 1 = None; 2 = Slight; 3 = Deep

[5].[0] Average number of seeds per pod

x of 20 pods

7. SEED COLOR

[1] 1 = Shiny; 2 = Dull; 3 = Semishiny; 4 = Variable

[2] 1 = Monochrome; 2 = Polychrome

[ ][4] PRIMARY COLOR: 1 = White; 2 = Yellow; 3 = Buff; 4 = Tan; 5 = Brown; 6 = Pink; 7 = Red; 8 = Purple; 9 = Blue; 10 = Black; 11 = Other _____

[ ][5] SECONDARY COLOR: 1 = White; 2 = Yellow; 3 = Buff; 4 = Tan; 5 = Brown; 6 = Pink; 7 = Red; 8 = Purple; 9 = Blue; 10 = Black; 11 = Other _____

[3] COLOR PATTERN: 1 = Solid; 2 = Splashed; 3 = Mottled; 4 = Striped; 5 = Flecked; 6 = Dotted

[2] HILAR RING: 1 = Absent; 2 = Present

[ ][2] HILAR RING COLOR: 1 = White; 2 = Yellow; 3 = Buff; 4 = Tan; 5 = Brown; 6 = Pink; 7 = Red; 8 = Purple; 9 = Blue; 10 = Black; 11 = Other _____

8. SEED SHAPE AND WEIGHT

[5] SHAPE OF SEED TAKEN FROM MIDDLE OF POD: 1 = Round; 2 = Oval; 3 = Cuboid; 4 = Kidney; 5 = Truncate Fastigiate

[3][6] Dry seed weight in g/100g seeds (adjusted to 12% moisture)

15

-- 8900127

9. ANTHOCYANIN PIGMENTATION

1 = ABSENT
2 = PRESENT

[1] Flowers [1] Stems [1] Pods [2] Seeds

[1] Leaves [1] Petioles [1] Peduncles [1] Nodes

10. KNOWN DISEASE REACTION

DISEASES - COMMON NAME: Anthracnose, Rust, Powdery mildew, Fusarium root rot, Pythium root rot, Rhizoctonia root rot, Pythium wilt, Sclerotinia white mold, Angular leaf spot, Bacterial wilt, Halo blight, Fuscous blight, Common bacterial blight, Red node virus, Pod mottle virus, Bean common mosaic virus, Bean yellow mosaic virus, Curly top virus, Bacterial brown spot, Bean southern mosaic virus, Other (specify) _____

REACTION: 1 = Susceptible; 2 = Resistant; 3 = Tolerant; 4 = Avoidance

(Give the common name (CN), scientific name (SN), and race(s), where applicable)

[2] DISEASE: CN Bean Common Mosaic Virus SN Marmor phaseali ; Race(s) NY 15 & BV 1

[ ] DISEASE: CN _____ ; SN _____ ; Race(s) _____

[ ] DISEASE: CN _____ ; SN _____ ; Race(s) _____

[ ] DISEASE: CN _____ ; SN _____ ; Race(s) _____

[ ] DISEASE: CN _____ ; SN _____ ; Race(s) _____

[ ] DISEASE: CN _____ ; SN _____ ; Race(s) _____

11. KNOWN INSECT/NAMATODE RESISTANCE

PESTS - COMMON NAME: Aphids, Bean pod weevil, Bruchid beetle, Corn earworm, Flea beetle, Leaf hopper, Lesion nematode, Lygus, Mexican bean beetle, Root knot nematode, Corn seed maggot, Spider mites, Thrips, Weevils, Western bean cutworm, Other (specify)

_____

REACTION: 1 = Susceptible; 2 = Resistant; 3 = Tolerant; 4 = Avoidance

(Give the common name (CN), scientific name (SN), and biotype, where applicable)

[ ] PEST: CN _____ ; SN _____ ; Biotype _____

[ ] PEST: CN _____ ; SN _____ ; Biotype _____

[ ] PEST: CN _____ ; SN _____ ; Biotype _____

12. KNOWN PHYSIOLOGICAL STRESS REACTION

1 = Susceptible; 2 = Resistant;
3 = Tolerant; 4 = Avoidance

[ ] Heat [ ] Cold [ ] Drought [ ] Air Pollution

Nutrient toxicity or deficiency (specify nutrient) _____

Other _____

13. COMMENTS

8900127

DRY EDIBLE BEAN

~~'D81125'~~ 'Cinnabar' 3/17/93

EXHIBIT D

BOTANICAL DESCRIPTION

'Cinnabar'
~~'D81125~~ is an upright, shorter vine variety that holds its pods mostly off the ground. It has a Type II plant habit. 'D81125' has shown wide adaptability in many production areas. Because of its upright and narrower plant habit, 'D81125' lends itself to higher density planting rates and direct harvest.

'Cinnabar'
~~'D81125'~~ is resistant to the BV 1 and NY 15 strains of BEAN COMMON MOSAIC VIRUS.

'Cinnabar'
~~'D81125'~~ has an average seed count of 1266 seeds per pound, which is about the same as 'UI 114.

'Cinnabar'
~~'D81125'~~ matured in 91 days in Twin Falls, Idaho in the years 1982-1986, which is the same as 'UI 114'(maturity defined as 90% of pods turned from green to buckskin).

8900127

EXHIBIT E

CINNABAR

Variety Cinnabar was developed by Ronald G. Shellenberger, Ph.D., a Rogers Brothers Seed Company plant breeder, with Rogers Brothers Seed Company funding the development of the variety. By agreement between employees and Rogers Brothers Seed Company all rights to any variety developed by employees are assigned to the Company. No rights to such variety are retained by the employees.

State of Delaware

Office of the Secretary of State

I, WILLIAM T. QUILLEN, SERCRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THAT THE SAID "ROGERS NK SEED CO.", FILED A CERTIFICATE OF AMENDMENT, CHANGING ITS NAME TO "ROGERS SEED CO.", THE FIFTH DAY OF MAY, A.D. 1994, AT 9 O'CLOCK A.M.

William T. Quillen

William T. Quillen, Secretary of State

0810041 8320

944080001

AUTHENTICATION: 7120759

DATE: 05-16-94

20

STATE OF DELAWARE
SECRETARY OF STATE
DIVISION OF CORPORATIONS
FILED 09:00 AM 05/05/1994
944080001 - 810041

CERTIFICATE OF AMENDMENT

OF

CERTIFICATE OF INCORPORATION
OF
ROGERS NK SEED CO.

Adopted in accordance with the provisions
of Section 242 of the General Corporation
Law of the State of Delaware

EFFECTIVE DATE: June 1, 1994

We, Willem van Overschot, President, and Richard B. Geller, Secretary, of Rogers NK Seed Co., a corporation existing under the laws of the State of Delaware, do hereby certify as follows:

FIRST: The Certificate of Incorporation of the corporation was filed on 2/27/75.

SECOND: The Certificate of Incorporation of said corporation has been amended as follows:

By striking out the whole of Article I thereof as it now exists and inserting in lieu and instead thereof, a new Article I, reading as follows:

ARTICLE I

Name

The name of the Corporation is ROGERS SEED CO.

THIRD: Such amendment has been duly adopted in accordance with the provisions of the General Corporation of Law of the State of Delaware, by the unanimous written consent of all of the stockholders entitled to vote in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

FOURTH: See attached Written Consent of Sole Shareholder and Board of Directors' Resolution.

IN WITNESS WHEREOF, we have signed this certificate this 13th day of April, 1994.

Willem van Overschot

Willem van Overschot, President

Richard B. Geller

Richard B. Geller, Secretary

ROGERS NK SEED CO.

WRITTEN CONSENT OF SOLE SHAREHOLDER

SANDOZ CORPORATION, owner of all of the issued and outstanding shares of ROGERS NK SEED CO., hereby consents, pursuant to Section 228 of the Delaware General Corporation Law, to the adoption of the following resolution as and for the act of the shareholder:

RESOLVED, that SANDOZ CORPORATION, as sole shareholder, approves the amendment to Article I of the Certificate of Incorporation of ROGERS NK SEED CO., changing its name to **ROGERS SEED CO.**

Dated: April 22, 1994

Heinz P. Imhof,
Chief Executive Officer
Sandoz Corporation

22

ROGERS NK SEED CO.

RESOLUTION

RESOLVED, that according to Section 242 of the General Corporation Law of the State of Delaware, that Article I of the Certificate of Incorporation be amended, effective June 1, 1994, to read as follows: The name of the Corporation is **ROGERS SEED CO.**; and, further,

RESOLVED, that the appropriate officers of Rogers NK Seed Co. be, and they hereby are, authorized to take any and all further action and execute and deliver any and all further documents that may be necessary or desirable in order to carry out and effectuate fully the purposes set forth in the foregoing resolution.

ADOPTED UNANIMOUSLY BY THE BOARD
MARCH 31, 1994

Richard B. Geller

Richard B. Geller, Secretary

State of Delaware

Office of the Secretary of State

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF MERGER, WHICH MERGES:

"ROGERS SEED CO.", A DELAWARE CORPORATION,

WITH AND INTO "NOVARTIS SEEDS, INC." UNDER THE NAME OF "NOVARTIS SEEDS, INC.", A CORPORATION ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, AS RECEIVED AND FILED IN THIS OFFICE THE TWENTY-FIFTH DAY OF JUNE, A.D. 1997, AT 9 O'CLOCK A.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.

Edward J. Freel, Secretary of State

0829320 8100M
971211787

AUTHENTICATION: 8531908
DATE: 06-26-97

STATE OF DELANARE
SECRETARY OF STATE
DIVISION OF CORPORATIONS
FILED 09:00 AM 06/25/1997
971211787 – 0829320

CERTIFICATE OF MERGER
OF
ROGERS SEED CO.
INTO
NOVARTIS SEEDS, INC.

The undersigned corporation organized and existing under and by virtue of the General Corporation Law of Delaware,

DOES HEREBY CERTIFY:

FIRST: That the name and state of incorporation of each on the constituent corporations of the merger is as follows:

NAME	***STATE OF INCORPORATION***
Novartis Seeds, Inc.	Delaware
Rogers Seed Co.	Delaware

SECOND: That an Agreement and Plan of Merger between the parties to the merger has been approved, adopted, certified, executed and acknowledged by each of the constituent corporations in accordance with the requirements of section 251 of the General Corporation Law of Delaware

THIRD: That the name of the surviving corporation is Novartis Seeds, Inc.

FOURTH: That the Certificate of Incorporation of Novartis Seeds, Inc., a Delaware corporation which will survive the merger, shall be the Certificate of Incorporation of the surviving corporation.

FIFTH: That the executed Agreement and Plan of Merger is on file at the principal place of business of the surviving corporation, the address of which is 7500 Olson Memorial Highway, Golden Valley, MN 55427.

SIXTH That a copy of the Agreement and Plan of Merger will be furnished by the surviving corporation, on request and without cost, to any stockholder of any constituent corporation.

SEVENTH: That this Certificate of Merger shall be effective on July 1, 1997.

Dated June 23, 1997

NOVARTIS SEEDS, INC.

By: Edward C. Resler
Name: Edward C. Resler
Title: Vice President & General Counsel